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ORIGINAL ARTICLES

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THE MEDICAL TREATMENT OF PEPTIC ULCER

By PHILIP KING BROWN, M. D., San Francisco
(From the Medical Service of the Southern Pacific Hospital.)

The treatment of any disease depends on two main factors—a removal or amelioration of the conditions that cause it, and the symptoms and damage it produces. Since we know little about the causes of peptic ulcer, our chief aim has been to *deal* with the subjective symptoms of pain and the burning of the usually accompanying hyperacidity, with hemorrhage, with symptoms arising from mechanical obstruction either from contracting scar, adhesions or pylorospasm, and finally with symptoms from extension of inflammation to neighboring parts, often by perforation, commonly by close contact of these parts with the diseased area.

So far as etiology goes we have learned to recognize the likelihood of ulceration of the duodenum in uremic conditions, of ulcer associated with burns of the body, and as Ophuls has shown, with ulcer associated with arteriosclerotic changes. These are unusual occurrences, calling for no special treatment because of the probable etiology.

In serial Wassermann examinations in fifty-five gastric ulcers four gave a Wassermann $+++$, while in ninety-seven duodenal ulcers three gave a Wassermann $+++$. This does not mean necessarily that these ulcers are syphilitic, nor does it mean that an ulcer associated with gastric crises of tabes is necessarily syphilitic, but we have had a few of these cases that were not amenable to ordinary treatment and whose symptoms, including hemorrhage, disappeared immediately on intensive anti-syphilitic treatment. This has led us to believe that some of these ulcers were syphilitic, and that in every case of ulcer a Wassermann should be made.

The relation of primary foci of infection in the mouth to ulcer has received much attention since Rosenau's work on the infectious origin of ulcer, and so reasonable does it seem, that we are growingly convinced that its commonness among railroad employes is influenced by mouth infection quite as much as by their notorious lack of proper dietetic regulation both as to quality and preparation of food, and regularity in eating, as well as haste. In the fifty-three cases that have passed through my wards in the past fifteen months, eleven have already been operated on for removal of the appendix, seven more of the eighteen that came to surgery had the appendix removed at time of operation on the gastric condition because of obvious clinical findings of trouble in the appendix. Two more had had operations on the gall-bladder and ten others were said by the roentgenologist to have cholecystitis. That these infections in the gastrointestinal tract have something to do with mouth infections seems highly probable, and in no single one of the series of fifty-three cases was the mouth in good condition except where all the teeth were on plates. Interesting also in this connection is the impression gained from discussions during the war with surgeons in the British army, who, as members of the Interallied Research Society run by the American Red Cross, assembled monthly in Paris to thresh out methods of handling the common problems of medicine and surgery. Hundreds of thousands of the lower class of British subjects received careful medical consideration for the first time, and the notorious frequency of advanced teeth and tonsil infections accompanied by ulcer of the stomach and duodenum, cholecystitis, and appendicitis was frequently commented on by British surgeons.

By way of prophylaxis, as well as an aid to healing, it is part of our routine treatment to care for

the mouth. If a patient presents himself with disease of his digestive tract it is our duty to put the entire tract in as nearly normal condition as possible, and our success in the medical treatment of gastric and duodenal ulcers, shown by the small number who return to us with recurrent symptoms, seems fairly attributable to this fact, and the early recognition of the absolute limits of medical treatment in certain cases.

For the relief of the commonest symptoms of ulcer, pain and burning—numerous plans have been put forward, all of them based on much the same idea—to rest the part and irritate it as little as possible. The three plans which contain the most generally accepted methods are outlined on the accompanying charts and were advocated by von Leube, Lenhartz, and Sippy. They all include rest in bed from two to four weeks, bland and slowly increased diet, moving the bowel by enema, the use of alkalis with more or less routine, and lavage to cleanse and remove excess of secretion or secretion abnormally present. Because it is the last one advocated, the Sippy regime is at present the most popular, although there is no reason for all the alkali elaborately dealt out day and night, or the lavage in over 90 per cent of the cases. We have absolutely no proof that they do good by hastening cure, and I am convinced that the frequent use of the stomach or even duodenal tube may do harm, and is an unnecessary procedure. As a basis for these statements an analysis of the fifty-three cases referred to shows that pain was not a symptom in five of them, that in the others it was the most marked symptom, and in all it was relieved in part, if not entirely, within three days and in no case did it persist at all beyond six days, and then was found to be due to accompanying cholecystitis. The recurrence of pain was found in one case to be due to rice, another to meat, and another to milk, and some delay is inevitable in rearranging a diet so that pain may be avoided. We do not condemn entirely the use of alkalis, and they are used in many cases, but *never* as a routine.

The Von Leube Diet

Rest in bed. No food or water by mouth for three days. Murphy drip from the start, 2 per cent glucose; thirty drops a minute; 1500 cc. in twenty-four hours. Hot applications (electric pad) to epigastrium. Fourth day 2 oz. fully peptonized milk (60 cc.), alternating with 2 oz. still Vichy every hour.

7 a. m. to 8 p. m.—Daily increase in milk by 1 oz. (30 cc.) until milk reaches 8 oz. (250 cc.) and Vichy 4 oz. (125 cc.). Enema for bowels. Alkaline powders for acidity. Semi-solids on tenth day, and then Carlsbad if breath is bad and bowels constipated. Silver nitrate if pain persists.

Sippy Treatment—Rest in bed three to four weeks. Bismuth subnitrate one-half hour A. C. 4 grams. Feed every hour—7 a. m. to 7 p. m.—equal parts milk and cream (1 to 3 oz. 30 to 90 cc.). Schedule may be changed to two or three hourly. Halfway between feedings, 10 grains (.6 grams) each of calcined magnesia and soda bicarbonate, alternating with 10 gr. bismuth subnitrate and 20 to 30 gr. soda bicarbonate. In event of diarrhea use bismuth powder and less magnesia.

After two or three days, soft eggs and well-cooked fine cereals are slowly added, so that in ten days, besides the milk and cream, three soft eggs and 9 oz. cereal are given in six feedings. No one feeding to make a total in stomach of over 6 oz. Stomach or duodenal tube used to test and control acidity. Three alkaline powders are given during the night and tube used two or three times a night to remove any acid secretion; rarely necessary after first few days.

The disappearance of pain on diet alone is a valuable guide to therapy. For the burning sensation of hyperacidity or hypersecretion it is frequently necessary to give alkali and this is to be resorted to in preference to lavage, but in every case some modification in diet or interval of feeding is in order, so that neutralization by alkali is no longer necessary. With the alkali cut down to 10 per cent of what is used in the Sippy diet and the lavage eliminated, the Sippy treatment does not differ in fundamentals from the Lenhartz, and since the introduction of that regime we have never seen any reason to abandon it. That it must be modified to meet conditions that differ in each case is true, but the fact remains that this is the simplest and sanest of the endless treatments dignified by the name of an author, and as outlined for our nursing staff, which changes every month, we have no trouble in carrying it out.

Repeatedly patients come to us in whom ulcer has been diagnosed from typical symptoms and we obtain a history of constant use of soda bicarbonate or calcined magnesia, or both after meals, because they have learned to know that they might thereby avoid the pain. The habit is pernicious, for pain is an excellent warning that an ulcer is active and that a dietary regime is in order. Morphine in appendicitis is the only more acutely dangerous therapy that occurs to me, and woe be to the doctor who obscures his case by unwise use of that drug. The well-treated ulcer case is a well-trained dietitian, and if he is wise he will live within the confines of what he can eat without pain. The entire absence of pain in a small percentage of cases is well known, and the shock of perforation has been the initial symptom of ulcer in some cases.

A word will suffice for the von Leube dietary regime. No one uses nutrient enemas any longer in this condition, and there seems no reason for the preliminary two or three days' rest of the stomach. An enema frequently sets up marked peristalsis, very little is really absorbed, and it is a poor and difficult practice at best.

Dr. F. C. Shattuck of Boston has discussed the opposite side of this question, and just before the work of Lenhartz was published Shattuck advocated the three or four days of starvation and recounted an occasional case in which rectal feeding could be carried on satisfactorily. He was himself a sufferer from ulcer and had tried this regime with success, fasting thirteen days. He abandoned rectal feeding, however, on account of the discomfort.

The best argument for preliminary rest of the stomach is the fact that, after gastroenterostomy for ulcer, this is the rule. Nothing is given to neutralize any possible acid secretion, and while regurgitated bile may accomplish this, the fact is that there is a normal tendency of wounds in the gastrointestinal wall to heal even under adverse

conditions, and the therapeutic ideal should aim to make conditions as little adverse as possible.

Conheim advocates olive oil for relief of pain, but I have had no experience with the use of it.

It would be very satisfactory to know early in our treatment all that the X-ray and stomach tube could tell us of motor function, defective outlines, and altered chemistry, but cases with recent bleeding should not be subjected to either form of examination if there has been severe hemorrhage within a week, or while there is even very slight hemorrhage. The contribution of the roentgenologist to our understanding of what we have to deal with is of immeasurable value, and as an acid to interpretations of progress in therapy it is most satisfactory. In addition to locating the site of ulcer in many cases, he gives us a good idea of motor function, the effect of pylorus spasm if present, and a great deal of light on the influence of inflammatory processes in gall-bladder ducts and liver. We have learned to distinguish the types of duodenal bulb deformities and what they mean, the behavior of the antrum in ulcer of the duodenum and in gall-bladder disease, and the influences of different processes on the peristaltic waves of the stomach. So common are the complications of ulcer that it is important to clear up all these conditions. Two cases now under treatment will illustrate this.

G. G., age forty-five, has had pain localized in the epigastrium one and one-half hours after eating for one year, during which there have been intervals without pain. No nausea or vomiting. Pain relieved promptly by food. No occult blood in stool. X-ray study showed normal emptying time, test meal emptied out in less than half an hour. At rest in bed on Lenhartz's diet, pain nearly entirely relieved in three days. Test meal, removed in twenty-five minutes, gave low normal total acidity. Nothing recurred in two attempts made in one hour and recovered again in forty minutes after test meals. When extra eggs were added to diet, pain began again, and on the twelfth day patient became slightly jaundiced and test meal showed hyperacidity and retention of some of the prunes eaten at 10 p. m. the night before. The roentgenologist was doubtful of ulcer and considered the case cholecystitis when first examined, and on rechecking changed his interpretation to ulcer with adhesions to gall-bladder. When the gall-bladder is quiet the ulcer condition makes excessively rapid emptying the rule. When the gall-bladder is acting badly there is pylorospasm and six-hour retention.

The next case illustrates the condition holding in uncomplicated ulcer when the ulcer is either near the pylorus, or causing acute trouble.

A. E. B., age thirty-eight. Local pain two hours p. c., nausea, drooling, three years' duration. Numerous attacks, hyperacidity, occult blood on milk diet, pain relieved by soda. X-ray reports: marginal pylorus ulcer; 50 per cent six-hour retention. Lenhartz's regime begun at once. Recheck of emptying time in twelve days, with normal finding.

We have had so many such results that we are slow to consider a large retention as necessarily indicative of permanently narrowed pylorus, even when the stomach seems large and the ulcer symptoms have persisted long enough to suggest considerable induration and a large stomach points to dilation. A trial of diet should always be made until it can be shown that the retention does not abate. The effect of gastric ulcers 8 or 10 cm. from the pylorus in stopping peristaltic waves and causing six-hour retention is well known, and the danger of producing very bad retention has been illustrated in one of our cases where a small perforating ulcer was excised, and no other pathology being present, the stomach very little interfered with, no posterior gastro-enterostomy was done. In twelve days following the operation less and less food passed the pylorus, and only by twice daily lavage was the stomach kept in good condition. Barium meal pictures and screening marked a block in line with the operative incision and forced a gastro-enterostomy. The case is mentioned to illustrate a type of retention and a difficulty in handling cases unless both surgeon and physician work together.

The treatment of hemorrhage should always begin medically because a very severe hemorrhage leaves no time and most difficult conditions for surgery, and with absolute rest most hemorrhages cease. We have had no case in my eighteen years' service, when one of my cases had to be operated on for control of hemorrhage. Several times very severe hemorrhages have been controlled by rapid lavage with ice water as suggested by Ewald, and once, after several days of vomiting of foul-smelling, partly digested blood in a private case of Dr. Coffey, I washed out an enormous amount of similar material with ice water and then poured in an ounce of adrenalin in four ounces of tap water, turning the patient on his right side and elevating the foot of the bed. After a few minutes this was washed out. A Lenhartz regime was instituted and several weeks later Dr. Coffey removed an enormously thick-rimmed penetrating ulcer of the lesser curvature. Einhorn has suggested the use of adrenalin in 1 cc. doses by mouth and hyperdermically in 1-2000 strength. The use, through tube, of enough adrenalin after cleansing the stomach would seem more reasonable, and certainly was successful in the most serious case in my whole experience.

The occurrence of blood in vomitus or stool in an unstudied case offers too poor a chance of relief by surgery which should be held in reserve for trial in event of failure from other methods to control bleeding. In the interval much light on the cause of hemorrhage may be forthcoming. Statistics show that hemorrhage occurs about equally from duodenal and gastric ulcers and four times more commonly than from cirrhosis of the liver, and five times more commonly than from the unknown causes. That it may occur from acute and chronic appendix conditions was called attention to by Moynihan fifteen years ago, when he reported twelve cases, in one of which several pints of blood were lost. All had the pain symptoms of gastric ulcer and were so regarded by him before operation.

One striking case of this kind occurred in my hands. In October, '09, Mrs. E. F. B., age twenty-six, was having her third attack of more or less constant pain, worse immediately after eating for two hours and localized just below the sternum. Nausea was present, but not vomiting. She had

had two serious attacks previously and several mild ones. Both Boas and Rosenheim had seen her in attacks while she was in Germany, and regarded her as having gastric ulcer and so treated her. Boas thought she also had gall-stones. She had vomited blood on several occasions in earlier attacks, and in the present attack there was constantly occult blood in the stools. On Lenhartz's regime she improved, but the pain was not entirely controlled. Nervous disturbances seemed to aggravate it. In the third week, while still in bed, she had an acute attack of appendicitis with a temperature of 102.5. This subsided and several weeks later Dr. Charles G. Levison removed her appendix and severed extensive adhesions and thoroughly explored her stomach and found no ulcer. An enlarged and slightly calcareous gland near the appendix was removed also. When last seen in 1913 she had had no return of her ulcer symptoms.

In cases of continued bleeding where operative risk is poor a transfusion is in order, and this alone may stop the bleeding. At least it will assist in tiding the patient over the surgical intervention. In the meantime the Lenhartz's diet is continued unless the hemorrhage is quite severe, in which case it is interrupted twenty-four hours.

SUMMARY.

Our regime in all cases where the careful history and physical examination point to ulcer and in which no recent bleeding has occurred is:

Confine patient to bed. Give four prunes at 10 p. m. Test meal at 7 a. m., removed at 8.

Lenhartz's diet, bowels moved by enema every other day.

Record occurrence and duration of pain and burning.

Gastro-intestinal study second day, including gall-bladder pictures.

First milk stool examined for occult blood and everyone thereafter, until it is no longer found.

Consideration of complications suspected in cases where pain continues at all after the second day following X-ray study.

Further study of gastric secretion if no complications are found, and use of alkali while diet is being modified *if burning sensation occurs.* Starch food, especially rice, as pointed out by Stone of Pasadena, and meat because it stimulates acidity, are the common offenders.

If symptoms subside at once and do not recur at all as is our experience in the vast majority of uncomplicated cases, surgery is not considered.

If the emptying time is delayed and a recheck in twelve days shows it to be still present, the case is turned over to the surgeon.

If a medically treated case re-enters the hospital with a return of his symptoms, he is questioned closely as to his habits and dietary regime. If found to have been constantly careless his only chance is surgery. If careful, and still the trouble has recurred, surgery seems to be indicated. The worse the conditions the clearer the surgical indications and the better the surgical results. The extreme conservatism of the Southern Pacific Hospital surgeons gives them the difficult cases in which indications for operation are plain, while the success of the medical regime is marked by the very few cases who ever return.

On discharge a diet card is given each patient. This is an arrangement of foods in the order of their digestibility, and is adapted from a scheme gotten up by Dr. D'Arcy Power.

Southern Pacific Company
Hospital Department—Pacific System
Directions for Diet

Eat slowly. Never swallow coarse food until it is chewed soft. Never swallow mush without masticating it and mixing it with the saliva. Avoid very hot and very cold drinks. Do not do heavy exercise after eating. Do not smoke. Do not wash down your food. Do not eat heartily when very tired. Fatigue is often mistaken for hunger.

You May Eat—Bread one day old—toast; crackers. zwieback; dry breakfast foods; soft-boiled, poached or scrambled eggs—omelet plain; macaroni, spaghetti, or other Italian pastes with tomatoes or a little grated cheese; boiled rice; plain soups; vegetable and milk soups; most white fish; plain roast or boiled beef, mutton, veal, chicken, turkey, game (no stuffing); asparagus, spinach, summer squash, string beans, green peas, boiled celery, kale; stewed

LENHARTZ'S DIET

Day	Calories	Eggs	MILK	MILK SUGAR	SCRAPED BEEF	BOILED RICE	ZWIEBACK	BUTTER	CHICKEN
1	280	Raw 2	100 cc. (3⅓ oz.)						
2	470	Raw 3	200 cc. (6⅔ oz.)						
3	637	Raw 4	300 cc. (10 oz.)	20 gm. (5 dr.)					
4	777	Raw 5	400 cc. (13⅓ oz.)	20 gm. (5 dr.)					
5	966	Raw 6	500 cc. (16⅔ oz.)	30 gm. (1 oz.)					
6	1135	Raw 7	600 cc. (20 oz.)	30 gm. (1 oz.)	36 gm. (9 dr.)				
7	1580	Raw 4 Soft 4	700 cc. (23⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	100 gm. (3⅓ oz.)			
8	1720	Raw 4 Soft 4	800 cc. (26⅔ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	100 gm. (3⅓ oz.)	20 gm. (⅔ oz.)		
9	2138	Raw 4 Soft 4	900 cc. (30 oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	200 gm. (6⅔ oz.)	40 gm. (1⅓ oz.) or toast 20 gm.		
10	2478	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	200 gm. (6⅔ oz.)	40 gm. (1⅓ oz.) or toast 20 gm.	20 gm. (⅔ oz.)	50 gm. (1⅔ oz.)
11	2941	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	300 gm. (10 oz.)	60 gm. (2 oz.)	40 gm. (1⅓ oz.)	50 gm. (1⅔ oz.)
12	2941	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	300 gm. (10 oz.)	60 gm. (2 oz.)	40 gm. (1⅓ oz.)	50 gm. (1⅔ oz.)
13	3007	Raw 4 Soft 4	1000 cc. (33⅓ oz.)	40 gm. (1⅓ oz.)	70 gm. (2⅓ oz.)	300 gm. (10 oz.)	80 gm. (2⅔ oz.)	40 gm. (1⅓ oz.)	50 gm. (1⅔ oz.)
14	3007	Same as thirteenth day							

peaches, plums, apricots, apples, pears, blackberries if seedless; milk puddings, tapioca, rice, bread, cornstarch, jellies, custard; cocoa, weak black tea, aerated waters.

Doubtful — Not Much at One Time — Mushes; sweet cakes; fried eggs; ham, bacon (if taken they are better broiled to a crisp); sardines; herrings; oysters; pork; duck; cheese; tomatoes, beets, potatoes, carrots, parsnips, egg and oyster plants, mushrooms; strawberries, raspberries, bananas; dumplings; nuts never unless carefully masticated; weak coffee, one cup daily.

You Must Not Eat—Hotcakes, pancakes, muffins; fruit cake; hard-boiled eggs; rich soups, chowder; salmon, lobster, crab, shrimps, smoked and salted fish; hashes; sausage; fried, greasy or recooked; meats, corn beef or other cured meats; onions, cabbage, turnips, cauliflower, beans, corn; salads; oranges, lemons, melons; pastry made of puff paste; Christmas pudding; mince pie; strong coffee or tea.

UNUSUAL MALIGNANT "MIXED" TUMOR (ADENO-SARCOMA) OF THE KIDNEY IN A YOUNG CHILD *

By A. J. HOOD, M. D., and HENRY ALBERT, M. D., Reno, Nevada.

This report of a case of malignant kidney tumor in an infant is offered because of the rarity of the disease and the paucity of literature on the subject. This patient has special interest because the child came under observation before any signs or symptoms of the tumor developed, and hence the rapidity and course of the growth could be observed. It also admonishes us to ever be on the alert to detect this condition, coming on as it does without any or very little pain and without any obvious symptoms until it can be definitely palpated, or until it is too late to offer the operative hope that early diagnosis and operation would afford.

Clinical Record—A. J. H., a girl two and a half years old, with a normal birth record and a practically normal infancy record until the present illness. We were called to see the child on May 10, 1922. There was a history of the child having pulled a larger child over on top of her, the weight of the child falling on her abdomen, and at the same time she struck her head upon the floor. This was followed by complaint of some pain in the abdomen, and vomiting was persistent. There was no evidence of abnormal condition in the abdomen, and we concluded that the child was suffering from the effects of the shock and the injury to the head. The child was apparently well in three days, and we did not see her again until July 10, two months after the first visit. The mother stated that the child had occasionally complained of slight pains in the abdomen in the interim between our visits. She had not interpreted the symptoms as of sufficient importance to ask for the services of a physician. A few days before our second visit the mother had noticed a swelling in the right lower abdomen, her attention having been called to it because the child had been kicked in the stomach by another child, and had complained of slight pain. The bowels had functioned properly and the child had been apparently well, with the exception of the complaint of the vague pains in the lower abdomen. We kept her under observation for about a week. She complained of but little pain and her bowel movements were easy. On one occasion the mother noticed a little blood in the commode. The child had a bowel movement at the same time, and the mother did not know the source of the blood. The urine was normal. The last three days the child began to run an afternoon fever. During the week she failed very rapidly, becoming haggard and emaciated. In the space of the week the abdominal mass grew past the umbilical line and downward into the pelvis, the increase in size being at least 10 per cent. Physical examination revealed the liver pushed up into the fifth intercostal space. The lungs were negative. Caput meduse well marked, the engorgement of the veins extending all over the abdomen. There were two well-defined areas of brownish discoloration similar to that of Addison's disease, and of about the size of a dime, on the skin of the abdomen. The mass was palpable in the right lower abdomen as a hard, smooth, and slightly movable tumor extending over one and a half inches to the left of the umbilicus and down into the pelvis, and posteriorly throughout the entire right lumbar region. Above, a small margin could be detected between the superior pole of the mass and the liver. Percussion confirmed palpation, as to the extent of the mass. Over the lower portion of the mass, crepitation significant of air in the intestines attached to the mass, was detected. No ascites was noted and the superficial glands not palpable. The left side was negative. The urine was negative, although hematuria may have been present at one time. Blood examination was also negative. Neither X-ray examination nor the phenolsulphonephthalein test were made.

Operation (by A. J. Hood, assisted by Vinton A. Muller)—On opening the right peritoneal cavity through a right rectus incision, the mass was clearly exposed below. Several small metastases were seen in adjacent loops of intestine. A loop of the ileum was incorporated in the mass, and required resection to remove it. The mass was easily freed down to the kidney pedicle, which was clamped, and the tumor and kidney removed en masse. Great care was used to control hemorrhage. The condition of the child was too poor to permit proper care of the raw peritoneal edges. Wound closed. The child died on the third day following the operation. There was no autopsy.

Gross Pathology—The mass consisting of tumor and kidney measured 10 x 12 x 13 centimeters, and weighed 1750 grams (three and one-half pounds). The kidney, although free from tumor substance, was, nevertheless, flattened by the pressure of the rapidly growing neoplasm. The kidney measured 2 x 5 x 9 centimeters and presented evidence of marked fetal lobulation, and slight hydronephrosis. No suprarenal was found in connection with the removed mass.

The tumor was rather spherical in shape, and slightly lobulated. The surface contour was in most places rather smooth, indicating the presence of a fairly well-defined capsule. In other places the

* Read before the Washoe County (Nevada) Medical Society, March 13, 1923.